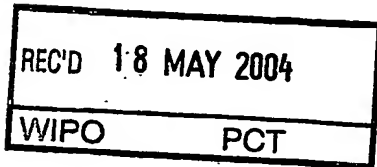


PCT/NZ2004/000079



CERTIFICATE

This certificate is issued in support of an application for Patent registration in a country outside New Zealand pursuant to the Patents Act 1953 and the Regulations thereunder.

I hereby certify that annexed is a true copy of the Provisional Specification as filed on 23 April 2003 with an application for Letters Patent number 525470 made by CHRISTOPHER JOSEPH KERNOT.

Dated 29 April 2004.

PRIORITY DOCUMENT
SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH
RULE 17.1(a) OR (b)

A handwritten signature in cursive script, reading "Neville Harris".

Neville Harris
Commissioner of Patents, Trade Marks and Designs



NEW ZEALAND PATENTS ACT 1953

PROVISIONAL SPECIFICATION

A DISPENSER FOR FILAMENTARY MATERIALS

I, CHRISTOPHER JOSEPH KERNOT, a New Zealand citizen of BP 429, Port Villa, Vanuatu, do hereby declare this invention to be described in the following statement:

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BACKGROUND TO THE INVENTION

Field of the Invention

This invention relates to a compact dispenser for dispensing a filamentary material, for example dental floss or dental floss tape.

SUMMARY OF THE PRIOR ART

It is well established that the accumulation of plaque on the teeth and gums is a significant contributing factor to dental disease. The therapeutic value of flossing in order to dislodge plaque and food debris collected between the teeth is well known and the dental profession generally agrees that regular flossing promotes dental health.

Despite the well established advantages of flossing, many busy people may find it difficult to find the time to floss their teeth in their daily routine. Many people therefore prefer to floss their teeth while away from home. However, carrying dental floss may be inconvenient especially when the dental floss dispenser is bulky or inconveniently shaped.

Credit card type dental floss dispensers are known in the art. Credit cards are in widespread use and therefore most wallets, purses and the like provide for storage of credit cards. It is therefore convenient to have a dental floss dispenser substantially the same size and/or shape as a credit card so that it can be conveniently carried in a wallet, purse or credit card holder or the like.

Examples of credit card type dental floss dispensers known in the art are US 4,327,755, US 5,649,659, US 4,881,560 and US 5,076,423. However, a disadvantage of these designs arises from the dental floss cutter and the end portion of the dental floss, being exposed in the environment when stored. This gives rise to the possibility of poor hygiene. Further, the dental floss may become snagged while at the bottom of a purse or in a wallet. When the dental floss dispenser is taken out, the snagged dental floss may cause unwanted withdrawal of the dental floss from the dispenser. Further disadvantages of the prior art may arise from the credit card type dental floss dispenser being too flimsy and therefore prone to warping or breaking.

A further disadvantage may arise from the cutter of the dispenser being exposed to the environment, which gives rise to the potential for damage of other articles such as the wallet or pocket if they come into contact with the sharp cutter.

DEFINITION

The word "floss" is used throughout the specification to describe the material which is dispensed from the dispenser of the current invention. It is to be understood that "floss" is used for convenience only and is to include many types of filamentary material such as: dental floss, dental tape, cord, twine, surgical sutures, cotton, and small gage wire.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a filament material dispenser which goes some way to overcoming the above disadvantages or at least provides the public with a useful choice.

In a first aspect the present invention may be broadly said to consist in a filament or floss dispenser including:

- two substantially planar wall portions, narrowly spaced apart,
- a supply of filamentary material
- a dispensing area,
- a moveable cover having a first and a second operating condition, wherein said cover when in said first operating condition substantially encloses said dispensing area, and wherein

- said cover when in said second operating condition exposes said dispensing area.

Preferably said supply of filamentary material is a reel and said reel is rotatably supported between said wall portions.

Preferably said cover is slidable between said first operating condition and said second operating condition in a sliding direction.

Preferably said sliding direction is substantially parallel to said wall portion.

Preferably said cover is biased toward its said first operating condition.

Preferably said dispensing area includes a cutter.

Preferably said dispensing area is provided in an indented portion of said walls, and said cover moves substantially within a recessed portion of said walls, and

said cover does not extend substantially beyond the outer margin of said walls.

Alternatively said cover is pivotally moveable between said first operating condition and said second operating condition and the plane of said pivoting movement is substantially parallel to said wall portion.

Preferably at least one said wall portion includes a circular aperture, and said reel protrudes into said aperture.

Preferably said wall portions are connected together by a living hinge.

Preferably said wall portions are adapted to mate and substantially seal around their perimeter.

Preferably at least a portion of said perimeter of one said wall includes a step adapted to receive a step of the other said wall to lap one another.

Preferably at least one said wall includes a further aperture adapted to receive an attachment means.

Preferably the exterior of said cover includes one or more surface features to improve grip.

Preferably said dispenser includes at least one guide to direct filament material from said reel to a dispensing aperture.

Preferably said guide includes a plurality of barbs to impede travel of filamentary material through said guide in one direction.

Preferably said wall portions are fastened together by a reversible fastening means for example, cooperating snap lock fasteners.

This invention may also be said broadly to consist in the parts, elements and features referred to or indicated in the specification of the application, individually or collectively, and any or all combinations of any two or more of said parts, elements or features, and where specific integers are mentioned herein which have known equivalents in the art to which this invention relates, such known equivalents are deemed to be incorporated herein as if individually set forth.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1 is a perspective view of a floss dispenser according to a first preferred embodiment of the present invention.

Figure 2 is a partially exploded view of a dental floss dispenser according to an embodiment of the present invention showing the inner details.

Figure 3 is an inside view of the case of the dental floss dispenser shown in Figure 1.

Figure 4 is a cutaway view of the dental floss dispenser case and spindle showing the interaction between the negative detail of the spindle and the case.

Figure 5 is a cutaway view of the dental floss dispenser case showing detail of the barbed floss guide.

Figure 6 is a perspective view of a further embodiment of the present invention having a pivoting cover.

Figure 7 is an inside view of the dental floss dispenser housing pictured in Figure 6.

Figure 8 is a perspective view of a further embodiment of the present invention having a sliding cover.

Figure 9 is an inside view of the dental floss dispenser housing pictured in Figure 8.

DETAILED DESCRIPTION

With references to Figures 1 to 5 a first preferred embodiment of the present invention will now be described. As a matter of convenience, the present invention is described in terms of a dental floss dispenser. However, the dispenser of the present invention is to be understood as suitable for dispensing many types of filamentary material.

A housing 1 contains a reel 2, on which dental floss is wound. The reel is rotatably supported within the housing such that the reel can rotate to release dental floss as the floss is withdrawn from within the housing. The housing includes a dispensing area 3 which includes an aperture 5 through which the dental floss exits the housing, and a cutter 4, which can be used to sever the dental floss at the required length before use. A cover member 7 is provided to enclose the dispensing area when not in use, in order to provide increased hygiene.

With reference to Figure 2 the housing member of a first preferred embodiment of the present invention will now be described in detail. Housing member 1 is constructed from two co-operating halves which are joined along an edge via a living hinge 10. When the housing is assembled as shown in Figure 1, the housing is approximately the same size and shape of a credit card. The thickness of the dispenser is approximately 2-6mm. Each half of housing 1 has a circular cut-out 8, which is adapted in use to receive corresponding

raised lip 9, of reel 2. The interaction between the housing halves and the reel enable the reel to effectively become part of the housing in order to achieve a reduced dispenser thickness without significantly altering the structural rigidity of the dispenser. A dispensing area 3 is provided in the form of a recess in housing 1. The dispensing area is indented within the perimeter of the rectangular housing and recessed within the thickness of the housing. A cutter 4 is provided in the recess of the dispensing area 3 and is adapted to receive and cut dental floss emerging from housing 1 through dispensing aperture 5.

A sliding cover 7 is provided having two operating conditions. In a first operating condition, sliding cover 7 is positioned such that it substantially encloses the dispensing area 3 which includes the cutter 4 and the dispensing aperture 5 as shown in Figure 3. The cover 7 is shaped to snugly fit and slide within the recessed portion 13 of the dispensing area 3. The recessed portion 13 also provides an overlapping fit between the cover 7 and the housing 1 in order to prevent entry of unwanted dirt and debris into the dispensing area when the cover is in its first (closed) operating position. The recess 13 also preferably allows the outside dimensions of the sliding cover to substantially fit within the thickness of the closed housing. When retracted in a sliding direction, the sliding cover 7 takes up its second operating position which exposes dispensing area 3, including cutter 4 and dispensing aperture 5, so that the user can dispense and cut a portion of dental floss as required. The cover is shown in its second (open) position in Figure 1.

A groove 14 is provided in housing 1 and runs substantially parallel to the sliding direction of the cover 7. Cover 7 may be provided with one or more protrusions 11, adapted to co-operate with groove 14 of the housing 1. When the dispenser is fully assembled for use, the protrusions 11 extend through, and interlock with, groove 14 to enable sliding of cover 7 between its first and second operating position while also preventing removal of the cover 7 from engagement with the housing 1. Groove 14 preferably extends completely through the housing although it is anticipated that groove 14 need not extend entirely through the housing. The groove 14 in housing 1 is preferably configured such that it does not open into the interior compartment of the housing where the dental floss reel is situated. For this purpose inward protruding lips 46 are provided around the perimeter of groove 14. When the two halves of the housing 1 are closed, the inward protruding lips mate and partition groove 14 from the inner portion of the housing where the reel is situated.

When not in use, it is preferable that cover 7 remains in its first, closed operating position, preventing contamination of the dispensing area and the dental floss. In order to achieve this, a biasing means such as spring 15 may be provided. Spring 15 is configured such that it interacts between the housing 1 and a spring tab 12 located on cover 7. A protrusion may also be provided on housing 1 in order to locate spring 15. Further protrusions may also be provided for spring 15 to bear against, such that the spring biases cover 7 toward its first operating (closed) position. Alternatively, instead of a torsion spring, other biasing means may be suitable such as: flat springs, integral plastic, cantilevered spring, or rubber band. It is also envisaged that it may be advantageous to hold the cover open against the biasing means when the cover is fully retracted, in order to provide improved access to the dental floss.

The housing 1 may also be provided with an aperture 16 on an attachment portion 47, which is suitable for use as an attachment means to a key ring or the like. In a similar manner to groove 14, aperture 16 is preferably configured such that the co-operating halves of housing 1, form aperture 16, through the housing without exposing the inner cavity containing reel 2, to the outside environment. Alternatively, an aperture may be provided in only one half of the housing, while the other half is indented to allow access to the attachment aperture.

In order to hold the two housing halves together in a substantially sealed manner after assembly, a plurality of cooperating fastening means 17, 18 may be provided. For this purpose male fastening protrusions 17 are provided on one half of housing 1, and female fastening means 18 are provided in complimentary positions on the other half of housing 1. In use the housing is assembled and snapped closed such that the male protrusions 17 engage tightly with the female fastening means 18. With reference to Figure 4, the male fastening means 17 may also be provided with a bump off portion 19 to ensure proper fastening between the male and female complimentary fastening means. This type of non-permanent fastening means gives rise to the advantage that the housing may be opened for the purpose of replacing the dental floss reel as desired.

With reference to Figure 4, complimentary stepped edges 20 of each half of housing 1 are shown. The complimentary stepped edges 20, provide additional inter-engagement between the respective housing halves in order to increase the structural integrity of the assembled housing. The inter-engagement helps prevent distortion of the

housing due to bending and twisting. Lapping of the joints between respective walls of the housing also helps seal the housing against contamination. The complimentary edges may also be thicker than the wall portions of the housing 1, in order to further enhance the engagement and sealing the housing members. For the same purpose it is also envisaged that the edges may include further features such as tongue and groove type joints.

With reference to Figures 1 and 2, the cutter 4 is located and fixed in the dispensing area 3, via a suitable fastening means, to the housing 1. With reference to Figure 5, cutter 4 may be provided with a plurality of apertures 29 which are adapted to receive a plurality of protrusions 48 integral with housing 1. The tips of the protrusions 48 may be swaged or melted such that the cutter 4 is firmly located and fixed to the housing. Alternatively, suitable fastening means for fixing cutter 4 may include: adhesive fastening, fixing via screws or an interference fit between the cutter plate 4, and features of the housing. A cutting groove 21 is located in the cutter plate 4 which in use is capable of severing the dental floss. A splayed tip portion 22 of cutter 4, extends away from the plane of the cutter plate 4, in order to provide for improved access of the dental floss to the cutting groove 21. It is also envisaged that the splayed tip portion of the cutter 4 may extend away from the main body of the cutter, but in the plane of the cutter plate. In such a case the overall thickness of the dispenser is potentially reduced. The cutter may also serve to hold the floss in position after cutting, in order to aid gripping of the end of the floss when a user wishes to withdraw and cut some floss. Cutting groove 21 may also be provided with sharpened edges in order to aid severing of the dental floss.

A floss guide 6 may also be provided to guide the dental floss as it is withdrawn towards the dispensing aperture 5. The inner surfaces of the floss guide channel 6 may also include a plurality of protrusions or barbs 23, which in use, help prevent retraction of the dental floss into the housing, thus making it difficult for a user to retrieve. In use the floss guide also acts to ensure that dental floss is withdrawn smoothly from the reel and does not become snagged on any internal features of the housing. Further guides 30 may also be provided along the path of the dental floss in order to ensure trouble free passage of the dental floss, from the reel, through the housing, and out of the dispensing aperture, as shown in Figure 2.

With reference to Figures 1-4, the dental floss reel 2 is preferably circular in cross section with an internal annular space or groove 31, for receiving the dental floss

winds. The sidewalls 49 of the dental floss reel 2 include raised lips 9, of substantially the same size and shape of the circular cut-out 8 in housing 1. In use, the raised lips 9 at least partially protrude into the corresponding circular cut-outs on each half of the housing. The raised lips 9 interact with cut-out 8 to provide bearing surfaces for rotatably mounting and centring the reel within the housing. The bearing surfaces may be perpendicular to the plane of the housing, or on an angle, or may also include tongue-in-groove type features. The interaction between the raised lips and the cut-outs also provides additional structural strength to the floss dispenser. The clearance between raised lips 9 and cut-outs 8, is preferably small in order to increase the hygiene of the dispenser by creating a tortuous path which debris must follow to enter the inner cavity formed by the walls of the housing in which the dental floss reel 2 resides. With reference to Figure 2 additional features such as a raised annular shielding protrusion 28 may also be provided in the housing in order to further shield the dental floss reel from contamination.

One or both sides of the reel 2, may be provided with graphics or advertising indicia as required. In use, as the dental floss is withdrawn from the dispenser the reel 1 rotates, and with it the graphic also rotates, which may give rise to an advantageous aesthetic appeal.

It will be appreciated that there are a large number of possible alternatives and variations of the present invention that present themselves to those skilled in the relevant art. The preferred embodiments described and illustrated in this specification disclose some of these envisaged variations. Each preferred embodiment may have one or more specific variations incorporated. The particular combination of features presented in each of the embodiments described is not intended to be limiting in any sense. It is intended only that the variations be presented and described as representative samples of the many possible advantageous combinations of features of the present invention.

With reference to Figures 6 and 7 a second preferred embodiment of the present invention, including some alternative features will now be described.

Housing 32 is constructed from two co-operating halves which are joined along an edge via a living hinge 50. The housing 32, when fully assembled is approximately the same size as a credit card in order to allow the dispenser to fit within a credit card pouch or the like. In contrast to the first embodiment of the present invention, the housing of the second embodiment is not rectangular in shape but rather a "tear drop" shape. This tear

drop shape may be advantageous in further reducing the overall size of the dispenser and increasing the resistance to applied bending forces, by reducing the length across one side of the dispenser. This embodiment may be especially advantageous where the dispenser is attached to a key ring for example. The ergonomics of the tear drop shape may also be preferable.

Each half of housing 32 is provided with a circular cut-out 33 for engagement with reel 34. A recessed dispensing area 35 is provided in housing 32. Within the recess of the dispensing area 35, a cutter 36 is provided which is adapted to receive and cut dental floss emerging from dispensing aperture 37.

A cover 38 is pivotably mounted on housing 32. In a first operating condition cover 38 is positioned such that it substantially encloses the dispensing area 35. The cover 38 is also preferably adapted to snugly fit within the recessed portion 39 of the dispensing area 35. The recessed portion 39 provides an overlapping fit between cover 38 and housing 32. The overlapping fit helps to prevent entry of unwanted debris into the dispensing area 35 when the cover is in its first (closed) operating position. The cover 38 is preferably shaped to fit substantially within recess 39 when in its closed (first) operating position.

When pivoted outwards, the cover 38 takes up its second operating position (open) which is shown in Figure 6. In its open operating position, the dispensing area 35 is exposed in order to allow access to the cutter 36 and the dispensing aperture 37. When the dispenser is not in use, it is preferable that cover 38 remains in its closed operating position in order to prevent contamination of the dispensing area with dirt and debris. In order to achieve this, a plurality of interacting bumps and recesses 40 and 41 are provided on the housing and cover respectively. In use these interacting bumps and recesses function to index the cover in its closed position so that inadvertent opening of the cover to expose the dispensing area is somewhat limited. It is envisioned that similar features may also be provided to index the cover in its fully open position.

The housing 32 may also be provided with an aperture 42 which is suitable for use as an attachment means to a key ring or the like. The aperture 42 is preferably configured such that the co-operating halves of the housing 32 form the aperture 42 through the housing without exposing the inner cavity containing reel 34 to the outside environment. This may be achieved by providing an inward protruding flange 51 on one or both halves of the housing, around the aperture 42 such that the aperture is sealed from the environment

when the respective halves of the housing 32 are closed. In an analogous manner to that described in the first preferred embodiment of the present invention, the respective housing halves are held together in a substantially sealed manner via a plurality of fastening means 43 and 44. Male fastening means 43 are provided on one respective half of the housing 32 and corresponding female fastening means 44 are provided in complementary positions on the other respective half of housing 32. In use the housing is assembled and snapped closed such that the male protrusions 43 engage tightly with the female fastening means 44.

In a similar manner to the first preferred embodiment, a cutter 36 is fastened to the housing 32 in the dispensing area 35. A guide 45 may also be provided adjacent to dispensing aperture 37, adapted to receive the dental floss after it is unwound from the reel 34 and guide it as it is withdrawn from the housing. In a similar manner to the first preferred embodiment of the present invention, the inner surfaces of the guide 45 may be provided with a plurality of barbs which in use act to prevent withdrawal of the dental floss into the housing.

With reference to Figure 8 and Figure 9 a further embodiment is pictured wherein the housing 53 is "tear drop" shaped and the cover 52 is a sliding cover substantially as described in the first embodiment of the present invention. It is also envisaged that a pivoting cover such is that described in the second embodiment of the present invention may also be applied to the rectangular shaped embodiment pictured in Figure 1.

The following describes a number of options or variations which maybe applied to the dental floss dispenser of the present invention.

Both sliding and pivoting covers may be provided with a plurality of grip improving features such as raised bumps 25 in order to aid the user to grip the cover when opening and closing it, as shown in Figure 1.

The housing, reel and the cover are preferably fabricated from a non-metallic material such as plastic in order to improve the ease of production and reduce costs. It is also envisaged that the housing of the dispenser may be constructed from a translucent transparent or opaque material as desired. A translucent or transparent housing may contribute to an increased aesthetic appeal and/or increase the novelty value of the item. Similarly the cover and/or floss reel may also be manufactured from a translucent, transparent or opaque material. An advantage of constructing the reel from a translucent or

transparent material arises from the user being able to visually confirm how much dental floss is left on the reel. In the case of a translucent or transparent floss reel, a graphic indicator may be included in order to relate the amount of dental floss remaining to an approximate number of "average floss uses".

Preferably the cutter is manufactured from a metal in order to provide the best cutting performance.

It is envisaged that a number of methods may be suitable for fastening the housing halves together. The fastening means may be permanent or reversible. A reversible fastening means gives rise to the advantage that the housing may be reopened for the purpose of replacing the dental floss reel. Suitable permanent and non-permanent fastening means for this purpose are envisaged such as gluing, plastic welding, screws or snap lock type fasteners. It is also envisaged that the housing may be manufactured from two distinct pieces and subsequently fastened together, rather than joined by a living hinge.

It is envisaged that an alternative method of rotatably mounting the reel within the housing might be suitable if one or both of the housing halves does not include a cut-out. The cut-out could be substituted with a recess of substantially the same shape, but which does not form an aperture all the way through the housing. The raised lip of the floss reel 9 in this case would interact with the recess in substantially the same manner as if the recess were a cut-out. Another alternative method would be to rotatably mount the reel on a shaft or protrusion in a manner commonly appreciated by those skilled in the art.

Alternatively the supply of dental floss may not be wound on to a reel but rather arranged in a coil or a flattened helix. The covering of the dispensing area while also improving the hygiene characteristics of the dispenser also prevents the cutter from damage or causing damage when not in use.

The cut-out in the housing may also be replaced by a transparent window, which would allow inspection of the inner housing and provide improved hygiene.

The dispenser of the present invention is inherently suitable for applications where a compact, easy to use, or an aesthetically pleasing dispenser is required. The dispenser of the present invention is especially suited where increased hygiene is preferred.

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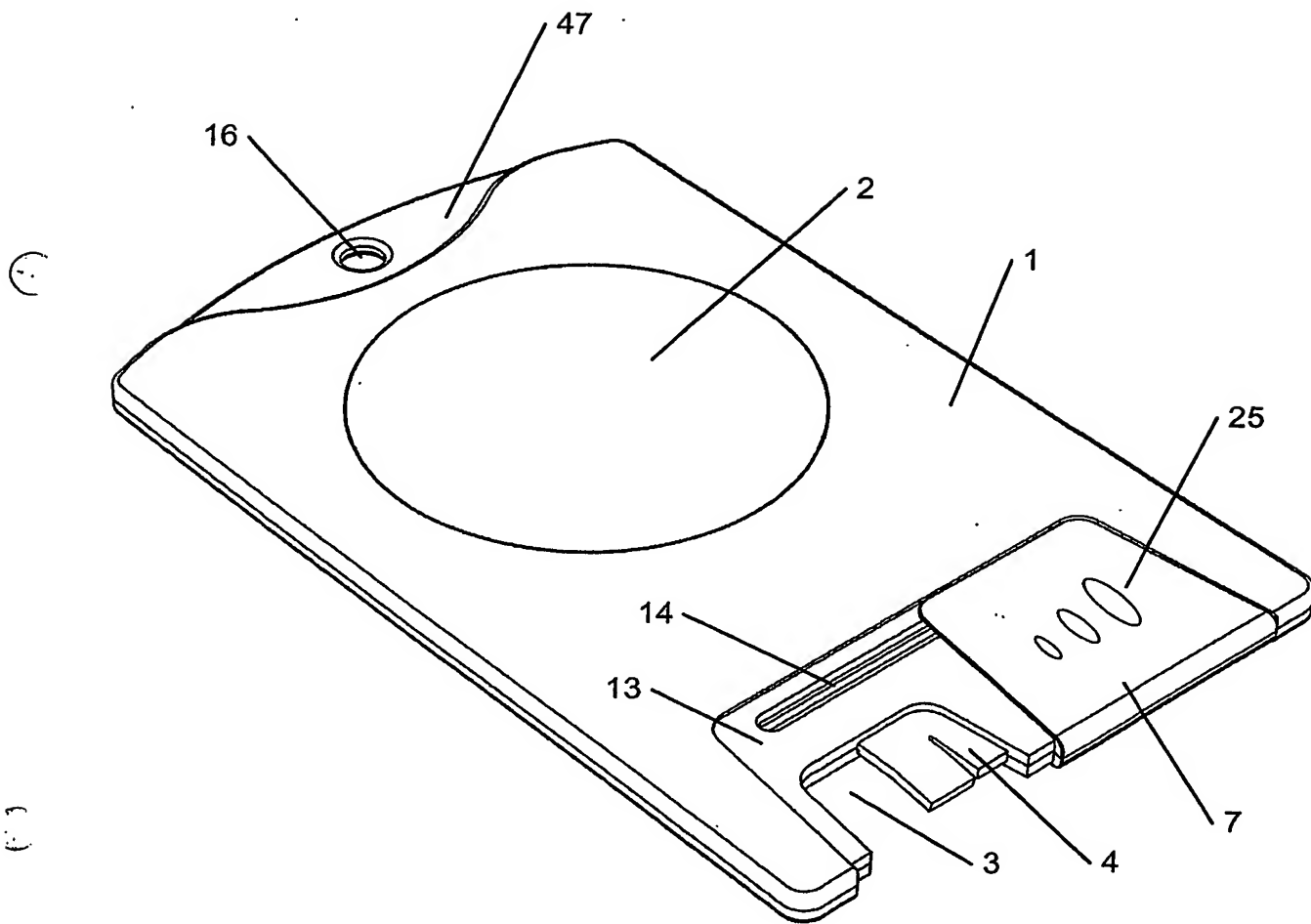


Figure 1

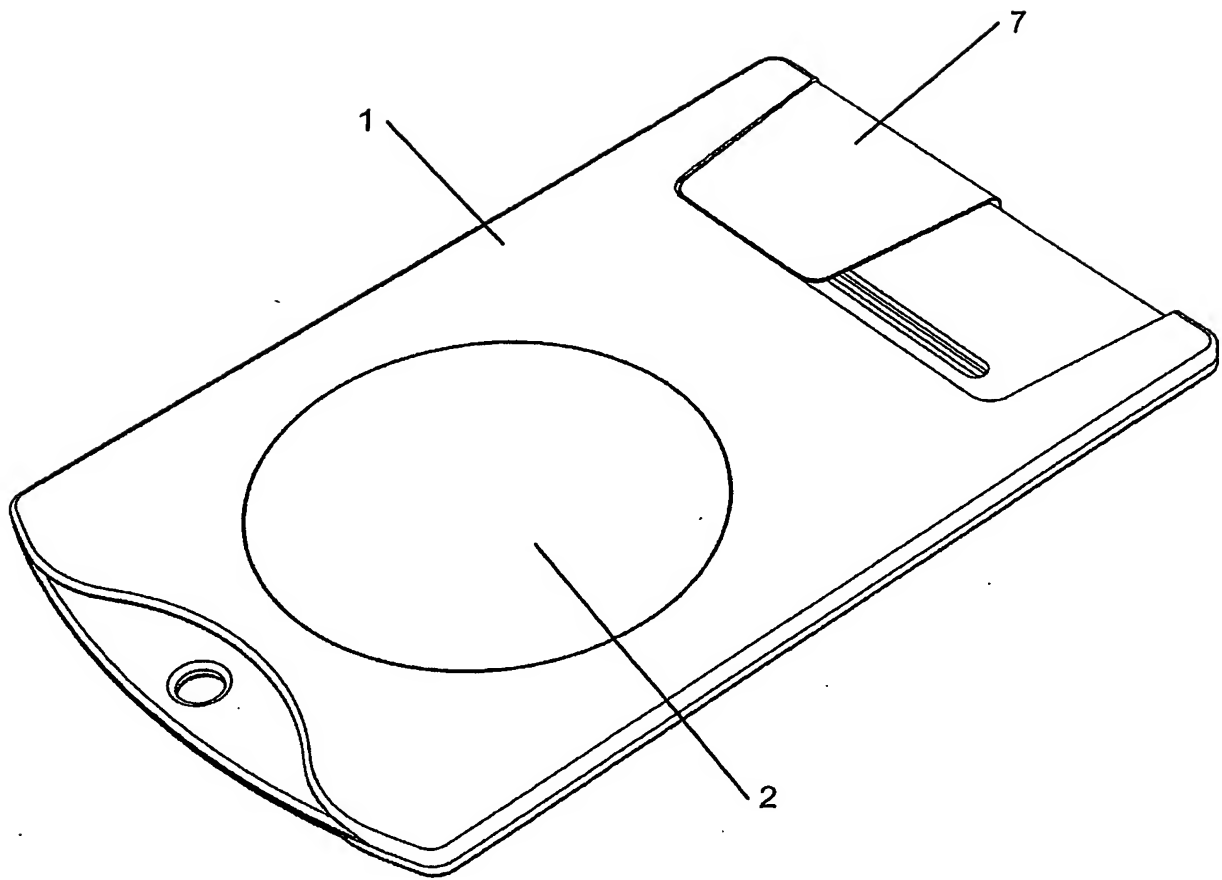


Figure 3

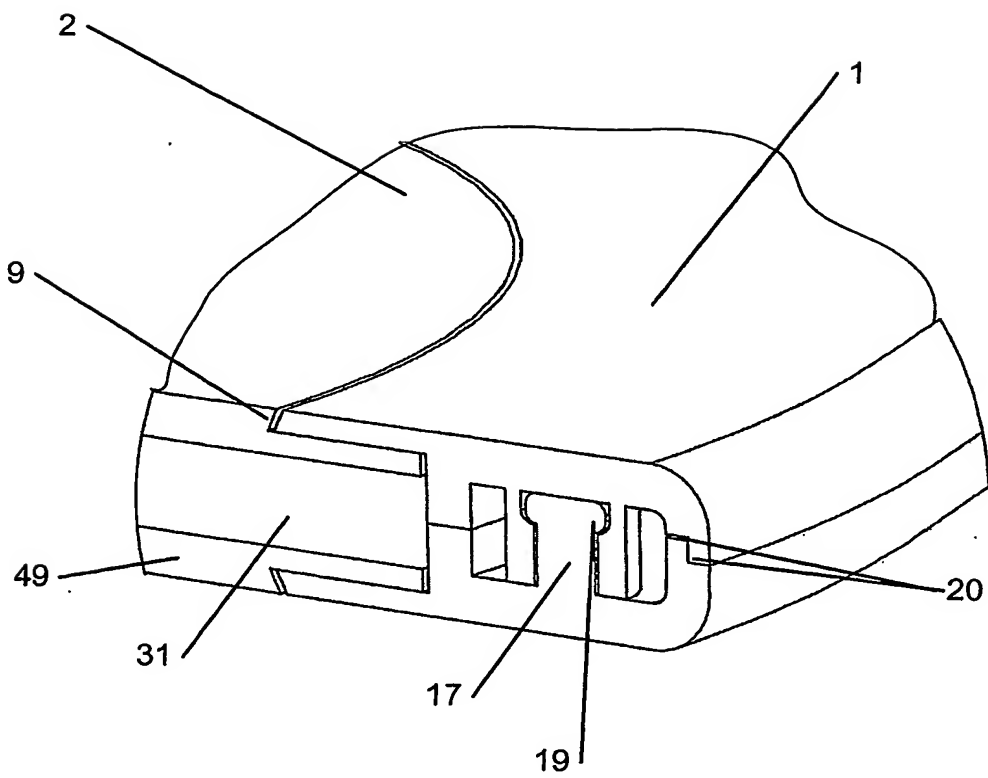


Figure 4

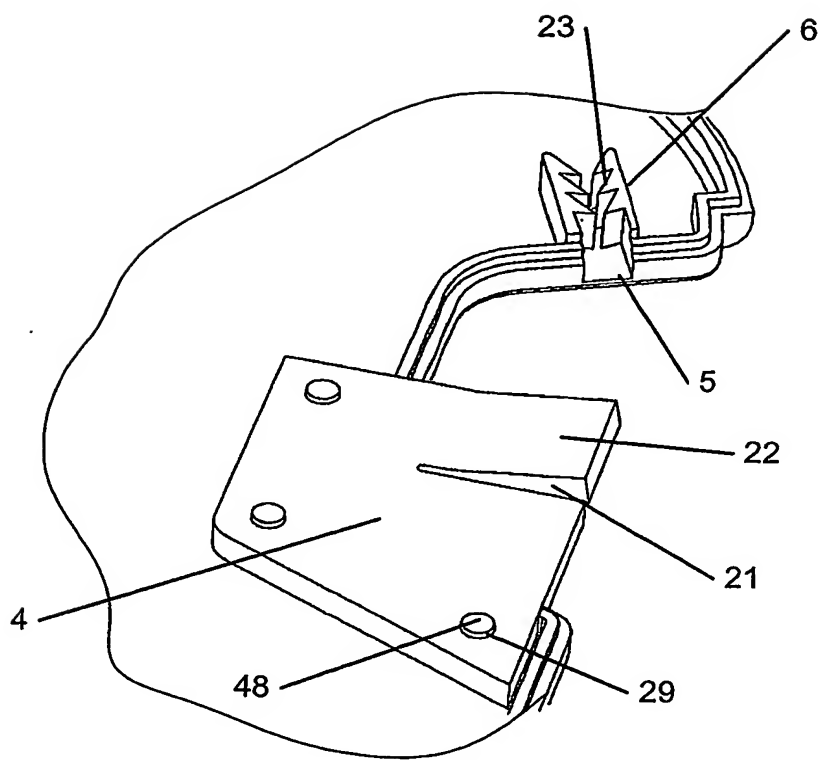


Figure 5

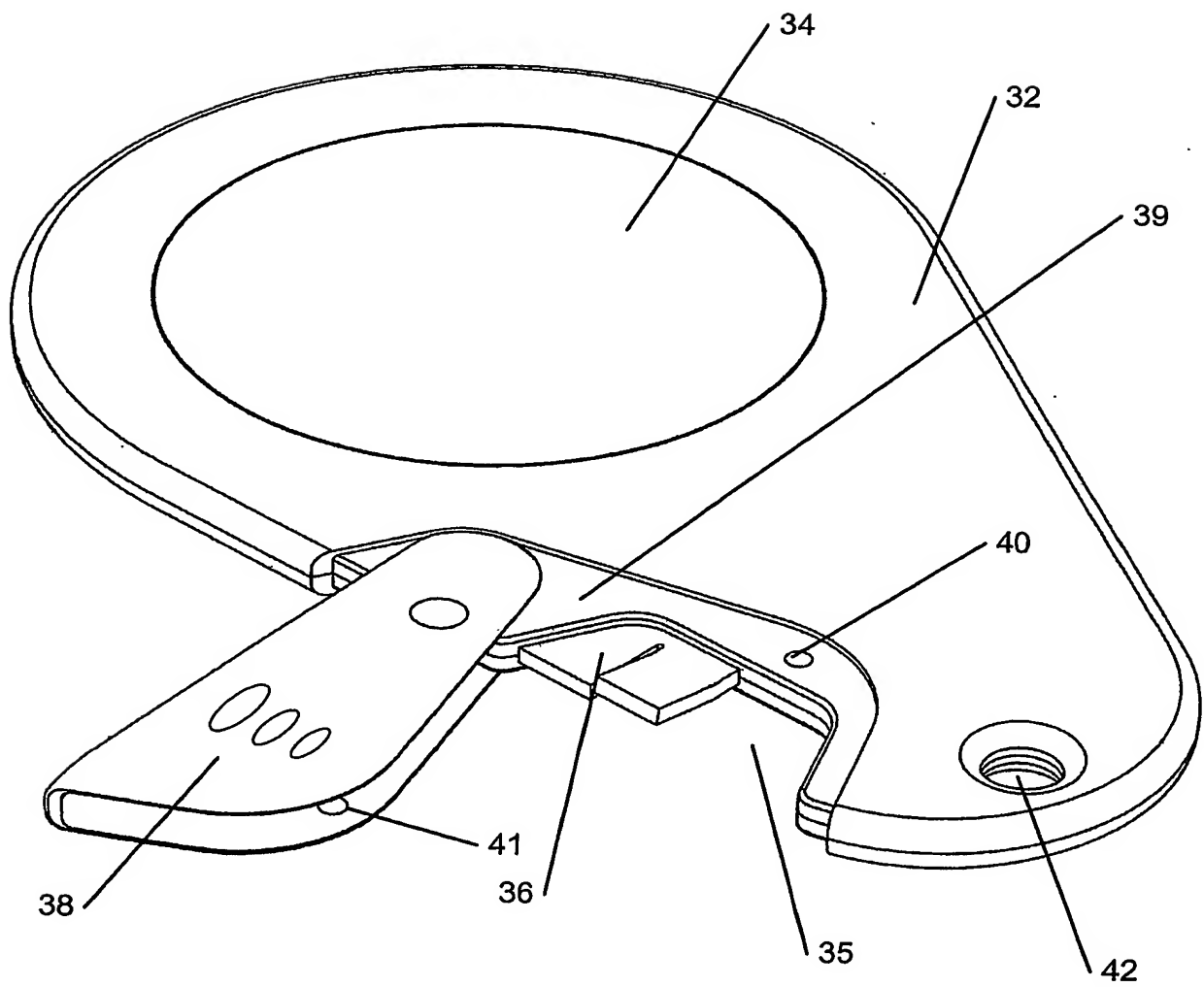


Figure 6

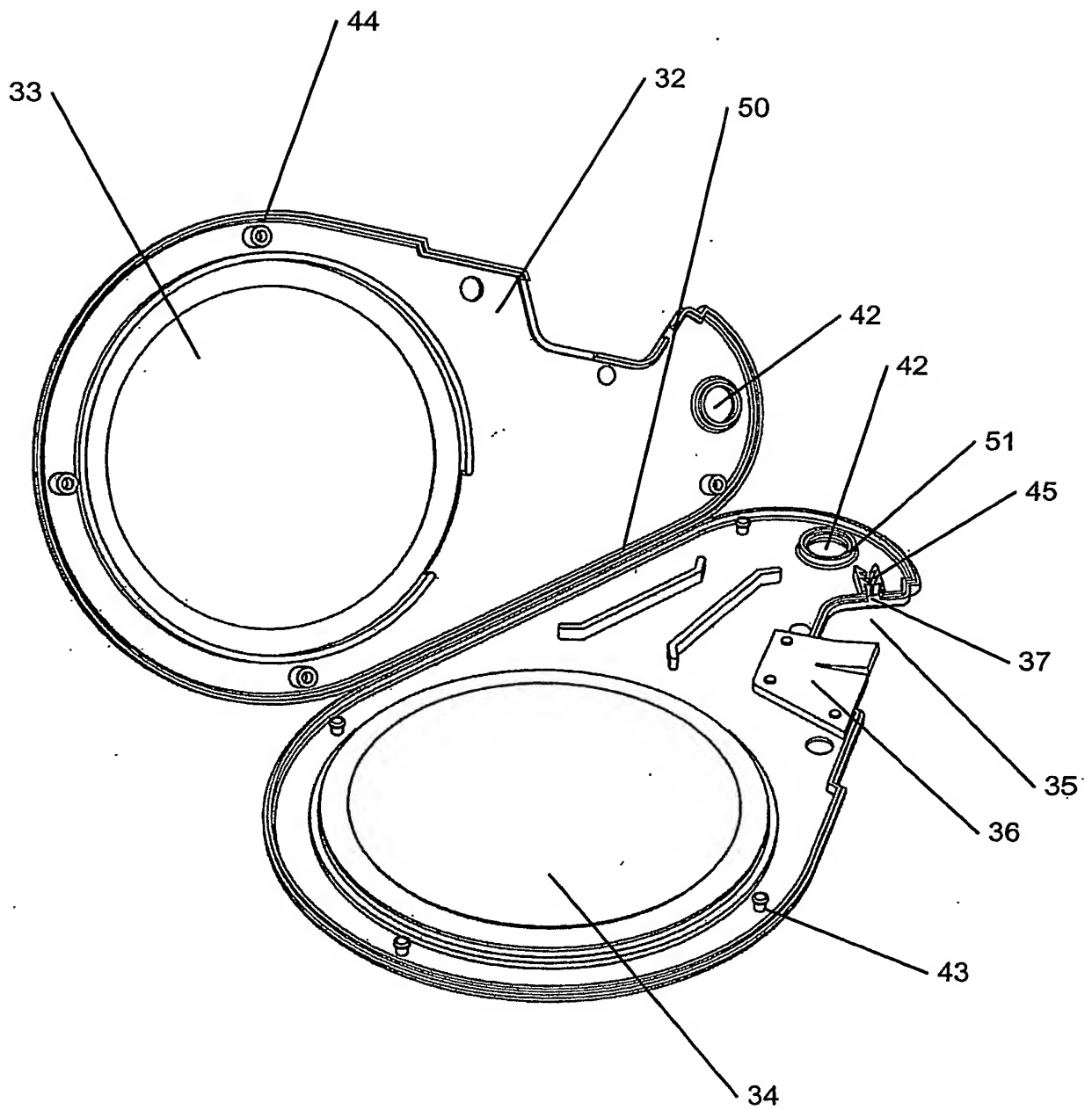


Figure 7

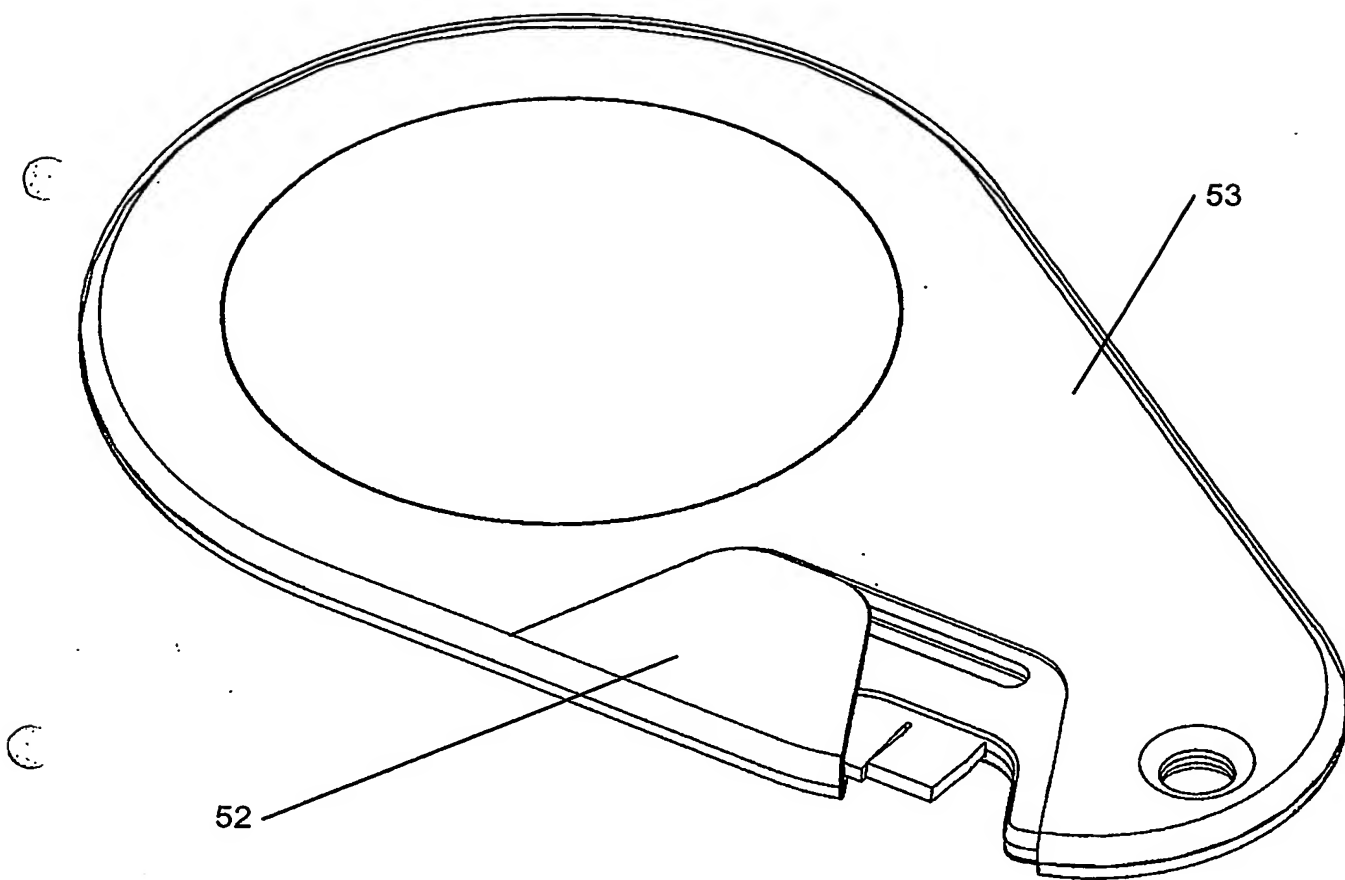


Figure 8

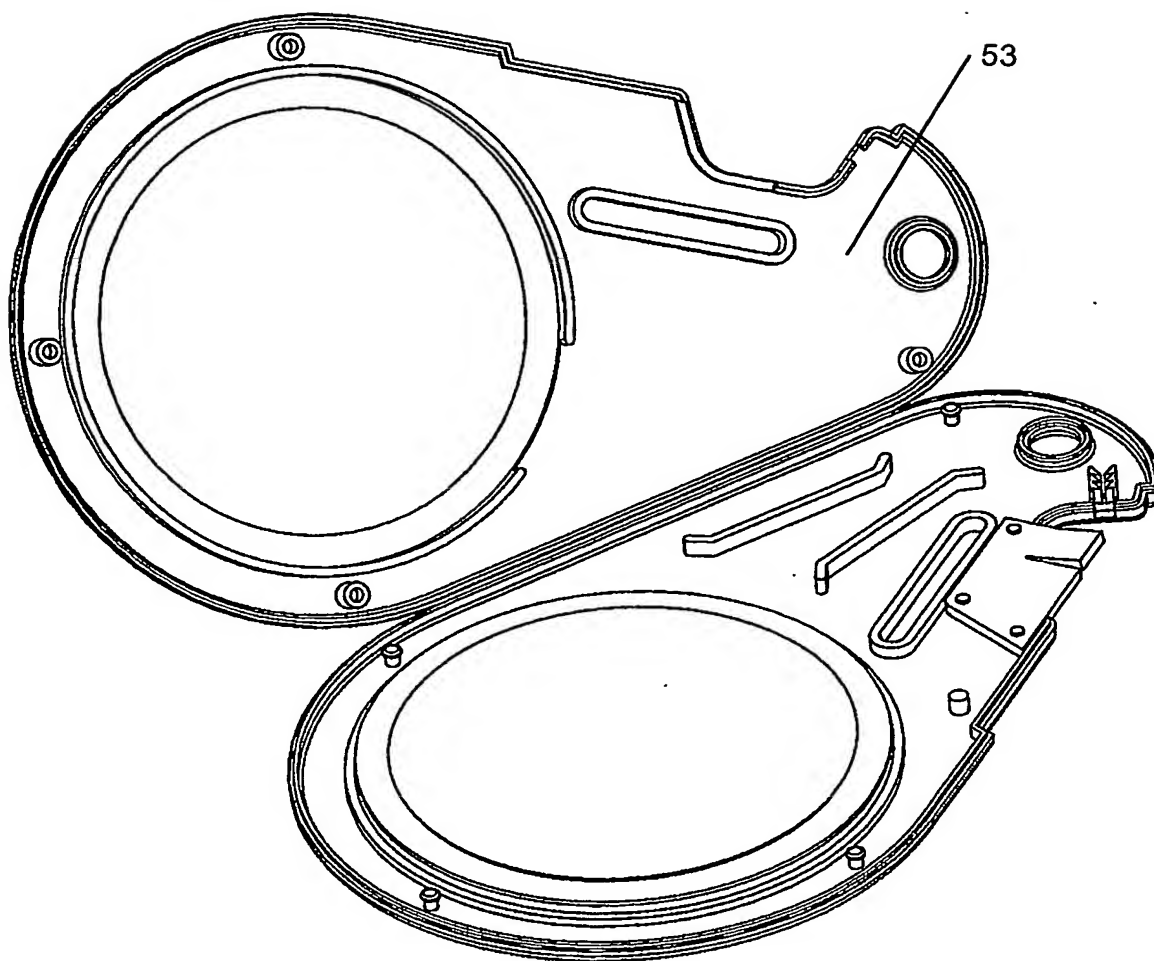


Figure 9